

RECEIVED
CENTRAL FAX CENTER

PATENT
Docket No. H 5265

DEC 09 2009

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of Hackbarth, et al.

Confirmation No.: 2641

Serial No.: 10/796,681

Examiner: William K. Cheung

Filed: March 9, 2004

Art Unit: 1796

Title: UV-CURING ANTI-FINGERPRINTING COATINGS

DECLARATION UNDER 37 CFR 1.132

Mall Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

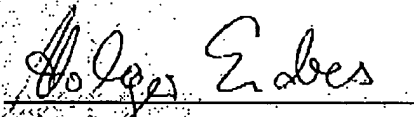
I, Holger Endres, declare the following:

1. I am an inventor of the above-captioned patent application entitled "UV-Curing Anti-Fingerprinting Coatings".
2. I have been a research scientist at Henkel AG & Co. KGaA (hereinafter "Henkel") since November 1, 2004 and have worked for 5 years in the arts related to coatings for metal.
3. I obtained a engineer (FH) degree in chemistry and paints from Fachhochschule Druck / Stuttgart / Germany in the year 1991.
4. I have reviewed the Official Action dated June 9, 2009 in which the examiner asserts that "applicant's specification fails to provide any indication to support applicant's argument that '(meth)acrylates' can denote both 'methacrylates and acrylates'", see page 11, first paragraph.
5. In the above-captioned application, the term "(meth)acrylates" was used to denote both "methacrylates and acrylates" and this would be readily understood by one of skill in the polymer arts at the time the invention was made.
6. It is common practice for those of skill in the art to use the term "(meth)acrylates" to denote both "methacrylates and acrylates". For example, a brochure from Rahn AG, a manufacturer of raw materials for polymers uses the heading "Urethane (Meth)acrylates" for a listing that includes urethane acrylate products and urethane methacrylate products, specifically "Genomer 4215, Aliphatic UA" meaning aliphatic urethane acrylate, and "Genomer 4205, Aliphatic UMA" meaning aliphatic urethane methacrylate. This brochure also uses "Epoxy (Meth)acrylates" in the same manner. See Rahn AG, "Rahn Energy Curing Product Guide", attached as Exhibit A.

7. In the Examples, "acrylates" were used as raw materials to make-up compositions for testing. Acrylate and methacrylate compounds that differ only in the presence or absence of the methyl group are known in the art to have similar properties. One of ordinary skill in the art, reading the specification including the Examples as a whole, would understand that Applicants had invented compositions that include acrylate and/or methacrylate components in the amounts disclosed in the specification and in the Examples.
8. I have reviewed U.S. Patent No. 5128391, U.S. Patent 5128387, U.S. Patent 5629365 and U.S. Patent 42050018. I am familiar with these patents as the state of the art. The '391 and '387 patents are directed to the surface protection of beverage cans, especially aluminum cans (Col. 3, lines 31-33). These are short-living goods which usually are not or at least only rarely cleaned after their manufacture. The claimed invention focuses on long-living goods like furniture, household appliances, and the like (Specification, page 1, lines 19-32), which are cleaned very often during their lifespan, so that the scratch resistance of the coating must be very pronounced. Furthermore, fingerprints must be easily removed from such surfaces. At the time the invention was made, there was a significant unmet need for durable coatings that combined fingerprint resistance and scratch resistance. Neither of these problems is considered in the '391 or '387 references.
9. Those of ordinary skill in the art would not have been motivated by the Nagasawa reference to add such fillers to the coatings of the '391 or '387 patents. In Nagasawa, pigments are used as thixotropic agents ('018, col. 12, l. 3-5, as quoted by the examiner). This teaches away from the present invention, as thixotropic agents are undesirable since the claimed invention must have a viscosity below 1000 mPas. With the viscosity limitation in mind, one of ordinary skill in the art would not consider to add the thixotropic agents of the '018 reference to the product of the '391 patent, as an undue increase of viscosity would have been expected. Therefore, it requires an inventive step to include those pigments in a required low-viscosity formulation despite their known property of thixotropic agents.
10. Attached to this my declaration as Exh. B are Tables 1-4, showing testing of compositions according to the invention. These compositions all contain micronized fillers added as an adjuvant for increasing the surface hardness (WO document, page 7, last sentence of the second section) to thereby improve scratch resistance.
11. Micronized fillers, nanoscale SiO_2 (Tables 1 and 2: pyrogenic silicic acid; specific surface area 150 m^2/g) on the one hand and nanoscale Al_2O_3 (Table 3: pyrogenic aluminum oxide; specific surface area 100 m^2/g) were incorporated in a fine dispersed form into the compositions according to the invention.

12. Determination of the surface quality of the coating after rotary treatment of a coated substrate according to the invention with steel wool for a defined coating weight and predetermined speed of rotation (see Table 4), as compared with verifying the scratch resistance with a hardness test piece (see Table 2) of the description, is a method accepted by customers to qualitatively determine scratch and abrasion resistance, and is routinely conducted for quality control.
13. As shown in Table 4, the coating materials containing these fillers, even though dispersed (B1-B10), compared with those which are free of the latter, form hardened coatings on brushed stainless steel with increased scratch and abrasion resistance, which additionally are dirt-repellent in the long term. Coating materials, for which the content of these fillers increased moderately (B3-B6 and B7-B10), as a hardened coating, also delivered increased surface hardness.
14. It was also unexpectedly found empirically that the presence of modified di- or tri-alkoxysilanes additionally had a positive effect on the surface hardness, when coatings were formed from coating materials containing these fillers.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.


Holger Endres

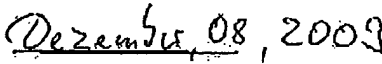

Date

EXHIBIT A
To Holger Endres Declaration

RAHN | EnergyCuring

Your partner for excellence

Product guide



Contents

Products	Page
Reactive Diluents	6-7
Epoxy (Meth)Acrylates	8-9
Polyester/Polyether Acrylates	8-9
Urethane (Meth)Acrylates	10-11
Oligoamides	12-13
Co-Resins	12-13
Specialties	14-15
Additives	14-15
Photoinitiators & Synergists	16-17
Polymeric Photoinitiators	18-19

This guide includes our most successfully used and commercially fully supported products. If your requirements cannot be met with any of these products, please contact us directly to help you find a solution.

Identification Code

Dilutions	GENOMER® Product Code
M22 = GENOMER® 1122	1st number: Product Group
PP = PPTA	2nd number: Functionality
EHA = 2-Ethylhexyl Acrylate	3rd and 4th number: Product reference
ETM = TMP(EO)TA	
HQ = HDDA	
TM = TMPTA	
TP = TPQDA	
GP = GPTA	
Ask for other available dilutions	
Product Data	SKIN Irritation
Color A = APHA	0 = Primary Irritation Index (scale 0-6)
Color G = Gardner	1 = Primary Irritation Index (OECD scale 0-4)
2 = Literature Value	2 = Literature
USCL (EC Dangerous Substances Classification)	Classification in accordance with the current EC directives and the CEFIC guide to the classification and labelling of Acrylates
XI = Irritant	
Xn = Harmful	
N = Dangerous for the Environment	
Registration Status	
EC = European Inventories (EINECS, ELINCS, NLP, Polymer)	S = SNUR
TSCA = Toxic Substances Control Act (USA)	D = DSL
CEPA = Canadian Environmental Protection Act	N = NDSL
L = Listed	NN = NDSL Notified
- = Not listed	U = Under Investigation
	LVE = Low Volume Exemption (< 1MT)
Properties	
+++ = excellent	++ = good
++ = moderate	+ = low

Your partner for excellence

Products

Urethane (Meth)Acrylates

Product	Product Data (Typical Values)							HS & Registration				
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C) (cps at 77 °F)	T _g (°C) / T _g (°F)	Skin Irritation	DSC1 Symbol	DSC1 (Risk Phrases)	EC Status	TSCA Status	CEPA Status
GENOMER® 4188/EHA	Aliphatic UA	1	1 G	5	120 000	-10 / 3	-	Xi	36/37/38-43	L	L	-
GENOMER® 4206	Aliphatic UMA	2	100 A	2	9 000	-	-	Xi	36/38	L	L	N
GENOMER® 4216	Aliphatic UA	2	2 G	1	20 000 keep open	-24 / -11	0.1%	free	-	L	L	D
GENOMER® 4217	Aromatic UA	2	1 G	3	100 000	-35 / -31	-	Xi	36/38	L	L	D
GENOMER® 4256	Aliphatic UMA	2	3 G	4	12 000	-	-	free	-	L	L	NN
GENOMER® 4269/M22	Aliphatic UA	2	1 G	3	65 000	-19 / 5	-	Xi	36/37/38	L	L	NN
GENOMER® 4267	Aliphatic UMA	2	200 A	2	9 000	-	-	free	-	L	L	-
GENOMER® 4302	Isocyanurate	3	80 A	1	10 000 keep open	40 / 104	-	Xi	36/38	L	L	NN
GENOMER® 4312	Aliphatic UA	3	1 G	1	80 000	31 / 88	0.1%	free	-	L	L	D
GENOMER® 4319	Aliphatic UA	3	1 G	1	58 000	4 / 39	0.3%	free	-	L	L	D
GENOMER® 4426	Aliphatic UA	4	1 G	5	4500	33 / 91	-	Xi	36	L	U	-
GENOMER® 4580/PP	Aliphatic UA	5	2 G	1	11 000	30 / 86	-	Xi	36/38	L	L	-
GENOMER® 4622	Aromatic UA	2	2 G	3	30 000	48 / 120	-	Xi	36/38-43	L	L	D
URETHANE ACRYLATE 88-289/W	Aliphatic UA Diaplysiol	3	-	1	30	48 / 116	0.2%	free	-	L	L	NN
URETHANE ACRYLATE 88-022	Aliphatic UA hydroxy functional	3	1 G	1	60 000	33 / 91	-	Xi	36/38	L	L	-

Available dilutions: GENOMER® 4188/M22, GENOMER® 4216/M22

11 in 60% Toluene

RAHN EnergyCuring

Products

Epoxy (Meth)Acrylates

Product	Product Data (Typical Values)							HS & Registration				
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C) (cps at 77 °F)	T _g (°C) / T _g (°F)	Skin Irritation	DSCL (Symbol)	DSCL (Risk Phrases)	EC Status	TSCA Status	CEPA Status
GENOMER® 2285	Aliphatic Epoxy Acrylate	2	3 G	7	1100	-	-	XI	36/38	L	L	D
GENOMER® 2283	Mod. Epoxy Acrylate	2	1 G	1	30 000	0/32	-	XI	36/38-43	L	L	D
GENOMER® 2286	Mod. Epoxy Acrylate	2	2 G	1	45 000	36/95	0.0 ⁺	XI	36/38	L	L	D
GENOMER® 2283	Mod. Epoxy Acrylate	2	2 G	1	25 000	40/104	0.0 ⁺	XI	36/38	L	L	D
GENOMER® 2283	Epoxy Acrylate	2	1 G	4	4 000 (60°C/140°F)	47/117	0.0 ⁺	free	-	L	L	D
GENOMER® 2280	Mod. Epoxy Acrylate	2	2 G	4	5 000 (60°C/140°F)	47/117	-	XI	36/38	L	L	D
EPOXY METHACRYLATE 87-053	Epoxy Methacrylate	2	2 G	-	4 600 (60°C/140°F)	48/118	-	free	-	L	L	D

Polyester/Polyether Acrylates

Product	Product Data (Typical Values)							HS & Registration				
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C) (cps at 77 °F)	T _g (°C) / T _g (°F)	Skin Irritation	DSC1 (Symbol)	DSC1 (Risk Phrases)	EC Status	TSCA Status	CEPA Status
GENOMER® 3394	Polyether Acrylate	3	16 A	0.5	130	32/90	0.0 ⁺	free	-	L	L	NN
GENOMER® 3413	Polyether Acrylate	4	60 A	0.5	4500	47/117	0.0 ⁺	free	-	L	L	NN
GENOMER® 3497	Polyether Acrylate	4	40 A	0.5	600	30/86	0.0 ⁺	free	-	L	L	NN
GENOMER® 3611	Polyester Acrylate	6	10 G	8	8000	35/94	-	XI	43	L	L	ND
POLYESTER ACRYLATE 03-949	Polyester Acrylate	3	3 G	8	20000	28/82	-	XI	36/38-43	L	L	D

RALIN

EXHIBIT B
To Holger Endres Declaration

EXHIBIT B

Table 1 Proportions in percent of the different components of the compositions according to the invention containing nanoscopic SiO₂

	Raw material	Test number (corresponding to the laboratory logbook)			
		VB1 (75/2)	VB2 (75/3)	B1 (75/1)	B2 (75/4)
a ¹)	Aliphatic hexafunctional urethane acrylate MW 1000	34.4	32.4	31.4	31.5
a ²)	Aromatic epoxy diacrylate MW 460	37.4	35.3	34.2	34.3
b)	Isobornyl acrylate	21.3	20.0	19.4	19.5
c)	Acid triacrylate (acid index 150)	1.8	1.7	1.6	1.6
d ¹)	Acid monoacrylate	-	2.9	2.9	2.8
d ²)	Photoinitiator	5.1	4.7	4.7	4.6
d ³)	Pyrogenic silicic acid	-	-	2.9	2.8
e)	Acrylate-modified di- or tri-alkoxy silane	-	3.0	2.9	2.9

EXHIBIT B

Table 2 Proportions in percent of the different components of the compositions according to the invention containing nanoscopic SiO₂

Raw material as in Table 1	Test number (corresponding to the laboratory logbook)			
	B3 (82/1)	B4 (82/2)	B5 (82/3)	B6 (82/4)
a ¹)	32.1	31.5	30.9	29.6
a ²)	34.9	34.3	33.7	32.2
b)	19.8	19.5	19.1	18.3
c)	1.7	1.7	1.6	1.6
d ¹)	2.8	2.8	2.7	2.6
d ²)	4.7	4.6	4.5	4.4
d ³)	0.9	2.8	4.5	8.7
e)	2.9	2.9	2.8	2.7

Table 3 Proportions in percent of the different components of the compositions according to the invention containing nanoscopic Al₂O₃

Raw material as in Table 1*	Tested number (corresponding to the Laboratory Logbook)			
	B7 (86/1)	B8 (86/2)	B9 (86/3)	B10 (86/4)
a ¹)	32.3	32.1	31.6	31.0
a ²)	35.1	35.0	34.5	33.8
b)	19.9	19.8	19.5	19.2
c)	1.7	1.7	1.7	1.6
d ¹)	2.9	2.9	2.8	2.8
d ²)	4.8	4.8	4.7	4.6
d ³)*	0.4	0.9	2.3	4.2
e)	2.9	2.9	2.8	2.8

* pyrogenic aluminum oxide

EXHIBIT B**Table 4 Influence of micronized fillers on the scratch resistance of the hardened coating agent on brushed steel**

Test number	Hardness test pencil 318 (Erichsen)	Abrasion resistance on a scale from 1-10* (5 = brushed steel)
VB1	-	
VB2	--	
B1	+	
B2	+	
B3	-	
B4	+	
B5	+	
B6	++	
B7		3
B8		1-2
B9		1
B10		1

* Optical assessment of abrasion caused by saponified steel wool, which for a supporting weight of 1.2 kg rotates at 66 rpm for 1 min on the coated steel surface:

- 1 not visible
- 2 hardly visible
- 3 visible/hardly scratched
- 4 well visible/scratched
- 5 very visible/strongly scratched (corresponds to the abrasion behavior of brushed steel)